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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,976	12/29/2003	Anthony Joonkyoo Yun	PALO-004	8822

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EXAMINER

KAHELIN, MICHAEL WILLIAM

ART UNIT PAPER NUMBER

3762

DATE MAILED: 12/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/748,976

Applicant(s)

YUN ET AL.

Examiner

Michael Kahelin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 17-38 is/are pending in the application.
- 4a) Of the above claim(s) 12-14 and 21-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see "Remarks", filed 11/20/2006, with respect to the rejection(s) of claim(s) 1-11 and 17-20 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new art.
2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. However, this Office action is made final based on the amendment of 7/10/2006.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 4, 7, 9, 10, 17, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rezai (US 2005/0065574, hereinafter "Rezai") in view of Ideker et al. (US 5,522,854, hereinafter "Ideker"). Please note that Examiner has confirmed "Table II" of Rezai's disclosure is supported by its presentation in PCT/US03/02847, which is currently unpublished.

6. In regards to claims 1, 17, and 18, Rezai discloses a device for modulating a portion of the autonomic nervous system of a female subject (par. 0005), is capable of increasing the sympathetic activity/parasympathetic activity ratio of the subject, and is capable of treating a fertility condition (Table II, line 1 indicates "infertility" and "irregular/painful menses", which means the device is applied to a female). For evidence that hypothalamus stimulation will result in increasing the said ratio, please refer to US 4,339,384 (Maillard et al.), column 8, line 34. Additionally, any stimulation of the autonomic system that increases the ratio of sympathetic activity to parasympathetic activity will inherently treat a fertility condition. Further, Rezai discloses a closed-loop feedback mechanism (par. 0047) that will determine a variable (from the sensor) before, during, and after modulation because it is running in a loop fashion, and this variable may be "any electrical or chemical activity" (par. 0048) including neuronal electrical activity (par. 0048). Rezai does not disclose that the neuronal activity variable is the ratio of sympathetic activity to parasympathetic activity. Ideker teaches of providing a closed-loop ANS activity controller with a means to determine the ratio of sympathetic

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activity to parasympathetic activity (col. 1, line 54 and "130") to establish control over an organ innervated by the ANS. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Rezai's invention by determining the ratio of sympathetic activity to parasympathetic activity to establish control over an organ innervated by the ANS.

7. In regards to claims 4 and 10, the increase in the ratio comprises increasing sympathetic activity (see Maillard).

8. In regards to claim 7, the modulation is localized (Fig. 1).

9. In regards to claim 9, electrical energy is applied to the autonomic nervous system (abstract). Since the hypothalamus controls the autonomic nervous system, Examiner is interpreting the hypothalamus to be part of the ANS.

10. In regards to claim 20, the fertility condition is infertility (Table II, line 1).

11. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as obvious over Rezai in view of Ideker, or in the alternative, over Rezai in view of Ideker, and further in view of Bothe Loncar et al. (US 2002/0188336, hereinafter "Bothe"). Rezai's modified invention discloses the essential features of the claimed invention, including providing stimulation continuously (par. 0042), which would inherently provide modulation during the luteal phase. Alternatively, Rezai and Ideker does not explicitly specify performing modulation during the luteal phase of the menstrual cycle. Bothe teaches of providing ANS modulation during the luteal phase of the menstrual cycle (par. 0264) to enhance the functions of the specific phase where pregnancy occurs. Therefore, it would have been

obvious to one having ordinary skill in the art at the time the invention was made to further modify Rezai's invention by modulating the ANS during the luteal phase to enhance the functions of the specific phase where pregnancy occurs.

12. Claims 5, 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rezai in view of Ideker, as applied to claims 1 and 9 above, and further in view of Whitehurst et al. (US 6,832,114, hereinafter "Whitehurst"). Rezai's modified invention discloses the essential features of the claimed invention except for modifying the ratio by decreasing parasympathetic activity or increasing sympathetic activity and decreasing parasympathetic activity. Whitehurst teaches of ANS modulation achieved by inhibiting parasympathetic stimulation and/or activating sympathetic stimulation (col. 18, line 60) to more accurately modulate the innervated organ. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Rezai's invention by providing ANS modulation by inhibiting parasympathetic stimulation and/or activating sympathetic stimulation to more accurately modulate the innervated organ.

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rezai in view of Ideker, as applied to claim 7 above, and further in view of Mann et al. (US 2002/0055761, hereinafter "Mann"). Rezai's modified invention discloses the essential features of the claimed invention except for stimulating the pelvic nerve. Mann teaches of stimulating a pelvic nerve (par. 0076) to more locally treat a fertility condition so as to

not affect other systems of the body (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Rezai's invention by stimulating a pelvic nerve to more locally treat a fertility condition so as to not affect other systems of the body.

14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rezai in view of Ideker, as applied to claim 1 above, and further in view of Khan et al. (US 2002/0064501, hereinafter "Khan"). Rezai discloses the essential features of the claimed invention except for determining the ratio of Th1 to Th2. Khan teaches of regulating the Th1/Th2 ratio to facilitate fertility where improved implantation is required. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Rezai's invention by determining the ratio of Th1 to Th2 to further facilitate fertility.

### ***Conclusion***

15. Applicant's amendment of 7/10/2006 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kahelin whose telephone number is (571) 272-8688. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Sykes can be reached on (571) 272-4955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MWK  
*[Signature]*  
12/1/06

*[Signature]*  
GEORGE R. EVANISKO  
PRIMARY EXAMINER

12/3/6